

Appl. No. : **09/385,386**
Filed : **August 30, 1999**

REMARKS

The March 22, 2005 Office Action was based upon pending Claims 6-49. This Amendment amends Claims 6, 15, 22, 26, 27, 31, 36, 37, 39, 41-45, and 47, and cancels Claims 1-5, 35, 38, and 40. Thus, after entry of this Amendment, Claims 6-34, 36, 37, 39, and 41-49 are pending and presented for further consideration.

In the March 22, 2005 Office Action, the Examiner withdrew Claims 1-5 and rejected Claims 6-49. In particular, the Examiner objected to Claims 27, 38-40, and 42-45 because of informalities. The Examiner further rejected Claims 22-35 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Further, the Examiner rejected Claims 6-8, 10, 12, 15-19, 22, 25, 27, 36-38, 41-42, 44 and 46-49 under 35 U.S.C. §102(b) as being anticipated by Jarvis et al. (*Handbook of Inductively Couple Plasma Mass Spectrometer*, pp. 76-78, 1992). The Examiner further rejected Claims 6-12, 15-16, 22, 25, 27, 36-38 and 41-49 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,252,827 ("the Koga et al. patent"). The Examiner further rejected Claims 6-8, 12, 15-17, 22-23, 25, 31-32, 35-36, 41-42 and 46-49 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,315,369 ("the Zadgorska et al. patent").

In addition, the Examiner rejected Claims 9-11, 13-14, 18-21, 24, 26-30, 33-34, 37-40 and 43-45 under 35 U.S.C. §103 (a) as being anticipated by U.S. Patent No. 5,315,369 ("the Zadgorska et al. patent").

Reconsideration of the pending claims, as amended, is therefore respectfully requested.

CANCELLATION OF CLAIMS 1-5

The Examiner acknowledged Applicants' election of the Group II claims, Claims 6-49, and requested the Applicants cancel the non-elected claims, Claims 1-5.

In response, Applicants have canceled Claims 1-5 without prejudice or disclaimer.

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OBJECTION TO CLAIMS 27, 38-40, AND 42-45

The Examiner objected to Claims 27, 38-40, and 42-45 because of informalities.

In response, Applicants have deleted the phrase "the second section in further communication" and added "and" in Claim 27, line 3.

In response, Applicants have canceled Claim 38.

In response, Applicants have amended Claim 39 to read, "wherein the gas is injected at a 45 degree angle relative to the transfer tube".

In response, Applicants have canceled Claim 40.

In response, Applicants have amended Claim 42 to read, "wherein the carrier gas is argon gas".

In response, Applicants have amended Claim 43 to read, "wherein the carrier gas is helium gas".

In response, Applicants have amended Claim 44 to read "wherein the carrier gas is nitrogen gas".

In response, Applicants have amended Claim 45 to read "wherein the carrier gas is ammonia gas".

Applicants respectfully request the Examiner to withdraw the objection to Claims 27, 38-40, and 42-45 because of informalities.

REJECTION OF CLAIMS 22-35 UNDER 35 U.S.C. §112, SECOND PARAGRAPH

The Examiner rejected Claims 22-35 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In response, Applicants have amended "the input" to "an input" in Claim 22 line 2.

In response, Applicants have amended the dependency of Claim 26 to Claim 23 from Claim 22.

In response, Applicants have amended "the input" to "an input" in Claim 31 line 2, and deleted the term "connector" in Claim 31 line 5.

Applicants respectfully request the Examiner to withdraw the objections to Claims 22-35 under 35 U.S.C. §112, second paragraph.

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**REJECTION OF CLAIMS 6-8, 10, 12, 15-19, 22, 25, 27, 36-38, 41, 42, 44 AND 46-49
UNDER 35 U.S.C. §102(b)**

The Examiner rejected Claims 6-8, 10, 12, 15-19, 22, 25, 27, 36-38, 41-42, 44 and 46-49 under 35 U.S.C. 102(b) as being anticipated by Jarvis et al. (Handbook of Inductively Coupled Plasma Mass Spectrometer, pp. 76-78, 1992).

Claims 6, 15, 22, 36, 37, 41, and 47

Jarvis appears to teach adding a sheathing gas around the nebulizer gas. See page 77 lines 9-13. In Figure 3.15, Jarvis appears to illustrate a 90 degree angle. Jarvis, however, does **not** teach introducing the sheathing gas at an angle of approximately 30 degrees to approximately 60 degrees. Jarvis does not discuss any angles.

In contrast, in an embodiment, the transfer line is at an angle of about 30 degrees to about 60 degrees with respect to a portion of the tubing. There are several advantages to introducing the carrier at an angle with respect to the tubing in the transfer system, as indicated in the specification on page 12 lines 13-17 and 19-28:

“The transfer system 50 also includes the transfer gas line 260. In one embodiment, the transfer gas line 260 comprises 5/32-inch Teflon tubing. Furthermore, in this embodiment, the transfer gas line 260 is angled with respect to the transfer gas line adapter 310. The angle is at approximately 45 degrees. In other embodiments, the angle ranges from 30 to 60 degrees.”

“By positioning a portion of the transfer gas line 260 at an angle relative to the transfer gas line adapter 310, the delivery of the aerosol to the ionization system 35 is improved. Accordingly, the amount of ionized atoms ultimately delivered to the mass spectrometry system 40 is also improved. For example, when the transfer gas line 260 is positioned at approximately 45 degrees with respect to the connection tubing 214, the delivery of the ionized atoms to the mass spectrometer system 40 has increased by over 300%.

Furthermore, when the transfer gas line 260 connects at an angle, less transfer gas drifts downward towards the spray chamber 45.”

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Because the reference cited by the Examiner does not disclose, teach or suggest introducing the carrier gas through a transfer or gas line that is angled at an angle of approximately 30 degrees to approximately 60 degrees with respect to the transfer tubing, Applicants assert that Claims 6, 15, 22, 36, 37, 41, and 47 are not anticipated by Jarvis. Applicants therefore respectfully submit that Claims 6, 15, 22, 36, 37, 41, and 47 are patentably distinguished over the cited reference and Applicants respectfully request allowance of Claims 6, 15, 22, 36, 37, 41, and 47.

Claims 7, 8, 10, 12, 16-19, 25, 27, 38, 42, 44, 46, 48, and 49

Applicants have canceled Claim 38.

Claims 7, 8, 10, and 12, which depend from Claim 6, Claims 16-19, which depend from Claim 15, Claims 25 and 27, which depend from Claim 22, Claims 42, 44, and 46, which depend from Claim 41, and Claims 48 and 49, which depend from Claim 47, are believed to be patentable for the same reasons articulated above with respect to Claims 6, 15, 22, 37, 41, and 47, respectfully, and because of the additional features recited therein.

REJECTION OF CLAIMS 6-12, 15-16, 22, 25, 27, 36-38 AND 41-49 UNDER 35 U.S.C. §102(b)

The Examiner rejected Claims 6-12, 15-16, 22, 25, 27, 36-38 and 41-49 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,252,827 ("the Koga et al. patent"). The Examiner also cites U.S. Patent No. 5,597,467 ("the Zhu et al. patent").

Claims 6, 15, 22, 36, 37, 41, and 47

Koga appears to teach introducing desulfurized air as the main plasma gas to the outer tube and sample air to be measured to the inner tube. See column 7 line 61-column 8 line 2. In Figure 2, Koga appears to illustrate a 90 degree angle. Koga also does **not** teach introducing the gas at an angle of approximately 30 degrees to approximately 60 degrees. Koga does not discuss any angles.

Zhu also appears to teach introducing a carrier gas to aid with the transport of the nebulized samples into a plasma torch. See column 8 lines 29-30. In Figures 3

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and 4, Zhu also appears to illustrate a 90 degree angle. Zhu also does **not** teach introducing the gas at an angle of approximately 30 degrees to approximately 60 degrees. Zhu does not discuss any angles.

In contrast, in an embodiment, the transfer line is at an angle of about 30 degrees to about 60 degrees with respect to a portion of the tubing. Positioning a portion of the gas transfer line at an angle relative to the tubing, improves the delivery of the aerosol to the ionization system and therefore, the mass spectrometry system. Further, less transfer gas drifts downward towards the spray chamber. See page 12, lines 13-28.

Because the references cited by the Examiner do not disclose, teach or suggest introducing the carrier gas through a transfer or gas line that is angled at an angle of approximately 30 degrees to approximately 60 degrees with respect to the transfer tubing, Applicants assert that Claims 6, 15, 22, 36, 37, 41, and 47 are not anticipated by Koga or Zhu. Applicants therefore respectfully submit that Claims 6, 15, 22, 36, 37, 41, and 47 are patentably distinguished over the cited references and Applicants respectfully request allowance of Claims 6, 15, 22, 36, 37, 41, and 47.

Claims 7, 8, 10, 12, 16-19, 25, 27, 38, 42, 44, and 47-49

Applicants have canceled Claim 38.

Claims 7-12, which depend from Claim 6, Claim 16, which depends from Claim 15, Claims 25 and 27, which depend from Claim 22, Claims 42-46, which depend from Claim 41, and Claims 48 and 49, which depend from Claim 47, are believed to be patentable for the same reasons articulated above with respect to Claims 6, 15, 22, 37, 41, and 47, respectfully, and because of the additional features recited therein.

**REJECTION OF CLAIMS 6-8, 12, 15-17, 22, 23, 25, 31, 32, 35-36, 41, 42, AND 46-49
UNDER 35 U.S.C. §102(b)**

The Examiner rejected Claims 6-8, 12, 15-17, 22-23, 25, 31-32, 35-36, 41-42 and 46-49 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,315,369 ("the Zadgorska et al. patent).

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Claims 6, 15, 22, 31, 36, 41, and 47

Zadgorska appears to teach introducing a sheathing gas around the sample stream. See column 4 lines 31-38. In Figure 1, Zadgorska appears to illustrate a 90 degree angle. Zadgorska also does **not** teach introducing the sheathing gas at an angle of approximately 30 degrees to approximately 60 degrees. Zadgorska does not discuss any angles.

In contrast, in an embodiment, the transfer line is at an angle of about 30 degrees to about 60 degrees with respect to a portion of the tubing to improve delivery of the aerosol as discussed above.

Because the reference cited by the Examiner does not disclose, teach or suggest introducing the carrier gas through a transfer or gas line that is angled at an angle of approximately 30 degrees to approximately 60 degrees with respect to the transfer tubing, Applicants assert that Claims 6, 15, 22, 31, 36, 41, and 47 are not anticipated by Zadgorska. Applicants therefore respectfully submit that Claims 6, 15, 22, 31, 36, 41, and 47 are patentably distinguished over the cited reference and Applicants respectfully request allowance of Claims 6, 15, 22, 31, 36, 41, and 47.

Claims 7, 8, 12, 16, 17, 23, 25, 32, 35, 42, and 47-49

Applicants have canceled Claim 35.

Claims 7, 8, and 12, which depend from Claim 6, Claims 16 and 17, which depend from Claim 15, Claims 23 and 25, which depend from Claim 22, Claim 32, which depends from Claim 31, Claims 42 and 46, which depend from Claim 41, and Claims 48 and 49, which depend from Claim 47, are believed to be patentable for the same reasons articulated above with respect to Claims 6, 15, 22, 31, 41, and 47, respectfully, and because of the additional features recited therein.

**REJECTION OF CLAIMS 9-11, 13-14, 18-21, 24, 26-30, 33-34, 37-40 AND 43-45
UNDER 35 U.S.C. §103(a)**

The Examiner rejected Claims 9-11, 13-14, 18-21, 24, 26-30, 33-34, 37-40 and 43-45 under 35 U.S.C. 103 (a) as being anticipated by U.S. Patent No. 5,315,369 ("the Zadgorska et al. patent").

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Claim 47

Zadgorska appears to teach introducing a sheathing gas around the sample stream. Zadgorska also does **not** teach introducing the sheathing gas at an angle of approximately 30 degrees to approximately 60 degrees. Zadgorska does not discuss any angles. See Figure 1 and column 4 lines 31-38.

In contrast, in an embodiment, a transfer system comprises a first means for transferring analyte to an ionization system, and second means for injecting a gas into the first means, where the second means is angled at an angle that ranges between approximately 30 degrees to approximately 60 degrees with respect to the first means. The second means is angled with respect to the first means to improve delivery of the aerosol, as discussed above, and is not an obvious variation in design.

Because the reference cited by the Examiner does not disclose, teach or suggest introducing the gas through a second means that is angled at an angle of approximately 30 degrees to approximately 60 degrees with respect to the first means, Applicants assert that Claim 47 is not obvious in view of Zadgorska. Applicants therefore respectfully submit that Claim 47 is patentably distinguished over the cited reference and Applicants respectfully request allowance of Claim 47.

Claims 9-11, 13-14, 18-21, 24, 26-30, 33-34, 38-40, and 43-45

Applicants have canceled Claims 38 and 40.

Claims 9-11, 13, and 14, which depend from Claim 6, Claims 18-21, which depend from Claim 15, Claims 24, and 26-30, which depend from Claim 22, Claims 33 and 34, which depend from Claim 31, and Claims 39 and 43-45, which depend from Claim 37, are believed to be patentable for the same reasons articulated above with respect to Claims 6, 15, 22, 31, and 37, respectfully, and because of the additional features recited therein.

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CONCLUSION

Applicants have endeavored to address all of the Examiner's concerns as expressed in the Outstanding Office Action. In light of the above remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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